

[Translation]

## ABSTRACT OF THE DISCLOSURE

[Abstract]

A screen display method of a mobile communication terminal with a camera capable of allowing a user to show a captured image or a received image to those around him by rotating the mobile communication terminal at various angles by using a direction key, and indicating that the screen has been rotated for user recognition. The screen display method of a mobile communication terminal includes: rotating a screen in left/right directions as a user presses a key pad button such as a direction key or a number key, by interworking with a keypad of the mobile communication terminal; adjusting a screen image ratio displayed according to the rotation of the screen according to the width of an LCD screen of the mobile communication terminal; and displaying a soft direction key indicating a rotational direction at an empty space of a lower end formed according to the adjustment of the screen width.

[Representative drawing]

FIG. 3

## [SPECIFICATION]

[Title of the Invention]

IMAGE DISPLAY METHOD OF MOBILE COMMUNICATION TERMINAL

[Brief description of the Drawings]

FIG. 1 is a view for explaining the ratio of a screen image displayed on a mobile communication terminal;

FIG. 2 is a view for explaining screen image display directions and ratios of screen images according to a direction key input according to an exemplary embodiment of the present invention; and

FIG. 3 is a flow chart illustrating the process of a screen image rotation display method according to an exemplary embodiment of the present invention.

[Detailed description of the invention]

[Object of the invention]

[Field of the invention and background art]

The present invention relates to a screen display method of a mobile communication terminal and, more particularly, to a screen display method of a mobile communication terminal with a camera capable of allowing a user to show a captured image or a received image to those around him by rotating the mobile communication terminal at various angles by using a direction key, and indicating that the screen has been rotated for user recognition.

Recently, mobile communication terminals are being gradually developed to portable information devices by including various supplementary functions in

addition to a simple call function. As well as functions of inputting such as a short message service (SMS), phone numbers, schedules, memo, and other information, currently, mobile communication terminals also provide multimedia services such as chatting, web surfing, video on demand (VOD), and the like.

However, the related art mobile communication terminal is fixed in its screen display direction, so the user has difficulty in showing a directly captured image or an image received via the terminal to others, and it is not possible to accurately transfer an image through the screen whose ratio is fixed in image conversion.

[Problem to be solved by the invention]

Therefore, an object of the present invention is to provide a screen display method of a mobile communication terminal capable of allowing a user to show a captured image or a received image to those around him by rotating the mobile communication terminal at various angles by using a direction key, and indicating that the screen has been rotated for user recognition.

To achieve these and other advantages and in accordance with the purpose of the present invention, as embodied and broadly described herein, there is provided a screen display method of a mobile communication terminal including: rotating a screen in left/right directions as a user presses a key pad button such as a direction key or a number key, by interworking with a keypad of the mobile communication terminal; adjusting a screen image ratio displayed according to the rotation of the screen according to the width of an LCD screen of the mobile communication terminal; and displaying a soft direction key indicating a rotational direction at an empty space of a lower end formed according to the

adjustment of the screen width.

[Construction of the invention]

In the present invention, a screen is rotated in left/right directions as a user presses a key pad button such as a direction key or a number key, by interworking with a keypad of the mobile communication terminal, a screen image ratio displayed according to the rotation of the screen is adjusted according to the width of an LCD screen of the mobile communication terminal, and a soft direction key indicating a rotational direction is displayed at an empty space of a lower end formed according to the adjustment of the screen width, thus allowing the user to easily recognize the direction of the screen rotation.

Exemplary embodiments of the present invention will now be described with reference to the accompanying drawings.

First, in the related art as shown in FIG. 1, when a multimedia service such as a directly captured image, a video on demand (VOD), and the like, is provided, a screen ratio ( $A:B$ ,  $A < B$ ) is adjusted based on terminal users, so with an image edited such that its vertical axis ( $B$ ) is longer than a horizontal axis ( $A$ ), a maximum size of the image fitting the screen width of an LCD can be viewed.

However, the screen needs to be rotated according to circumstances, such as when an image with a screen ratio which has been changed is received or the user wants to show an image displayed on the LCD to others.

Thus, in order to properly cope with such situations, in the present invention, the user is allowed to selectively rotate the screen in left and right directions, the screen ratio is suitably adjusted according to the rotational direction, and a soft direction key indicating a rotational direction is displayed on

an empty space formed according to the adjustment of the screen width, thus allowing the user to easily recognize the rotational direction of the screen.

In the present exemplary embodiment, the direction key as shown in FIG. 1 is used, but obviously, any other keypad buttons may be employed according to user convenience in fabricating mobile communication terminals.

Thus, in order to rotate a normally displayed screen image by 90° to the right side, the user may press a right direction button (N2). In order to rotate the normally displayed screen image by 90° to the left side, the user may press a left direction button (N4) or may press the right direction button (N2) consecutively three times. In order to rotate the normally displayed screen image by 180°, the user may press an up direction button (N3).

In this case, the forward/reverse directional display screen images such as (a) or (d) may be obtained by simply changing the direction of the original image, so their screen ratio does not change.

However, when the display screen images are rotated horizontally by 90° as shown in (b) and (c), the screen ratio is changed from A:B to C:D.

Namely, the screen ratio is changed to  $C=A$ ,  $D=A^2/B$ , generating an empty space at a certain ratio at a lower end.

Thus, in the present invention, soft direction keys (E and F) indicating a rotational direction are displayed in the generated empty space to allow the user to easily recognize the screen rotation direction.

FIG. 3 is a flow chart illustrating the process of a screen rotation display method according to an exemplary embodiment of the present invention. Specifically, FIG. 3 shows a screen display method according to input of directional keys.

Namely, when the user presses the right direction button (N2), the screen image is rotated by 90° to the right side. Then, the screen ratio is converted into C:D as described above to display an image, and the right soft direction indicator (F) is blinking at the lower empty space (S106).

If the user presses the up direction button (N3), the screen is rotated by 180°, and a normal screen-mirrored screen image is displayed without changing the screen ratio (S107).

Next, when the user presses the left direction button (N4), the screen image is rotated by 90° to the left side, the screen ratio is converted into C:D as described above to display an image, and the left soft direction indicator (E) is blinking at the lower empty space (S108). If a down direction button (N1) is pressed or no particular direction button is pressed, the normal screen image is displayed (S105).

At this time, the screen image may be set to be rotated by repeatedly pressing the same direction key or by pressing a direction key directly corresponding to a pertinent rotation direction.

Namely, the screen may be set to be rotated in the same direction when the right direction key (N2) is pressed three times or the left direction key (N4) is pressed one time.

#### [Effect of the invention]

As so far described, the screen display method of a mobile communication terminal according to the present invention has the advantage in that the user is allowed to show a captured image or a received image to those around him by rotating the mobile communication terminal at various angles by using a direction

key, and the user can easily recognize that the screen has been rotated.

What is claimed is:

1. A screen display method of a mobile communication terminal, the method comprising:

rotating a screen in left/right directions as a user presses a key pad button such as a direction key or a number key, by interworking with a keypad of the mobile communication terminal;

adjusting a screen image ratio displayed according to the rotation of the screen according to the width of an LCD screen of the mobile communication terminal; and

displaying a soft direction key indicating a rotational direction at an empty space of a lower end formed according to the adjustment of the screen width.

2. The method of claim 1, wherein a screen ratio of a horizontal axis (C) and vertical axis (D) when the screen image rotated by 90° to the left and right sides is set to be  $C=A$  and  $D=A^2/B$  with respect to a horizontal axis (A) and vertical axis (B) of an LCD screen.

3. The method of claim 1, wherein the screen according to pressing of the direction keys is rotated by repeatedly pressing the same direction key or pressing a direction key directly corresponding to a pertinent rotation direction.



【도면】

【도 1】  
Fig. 1

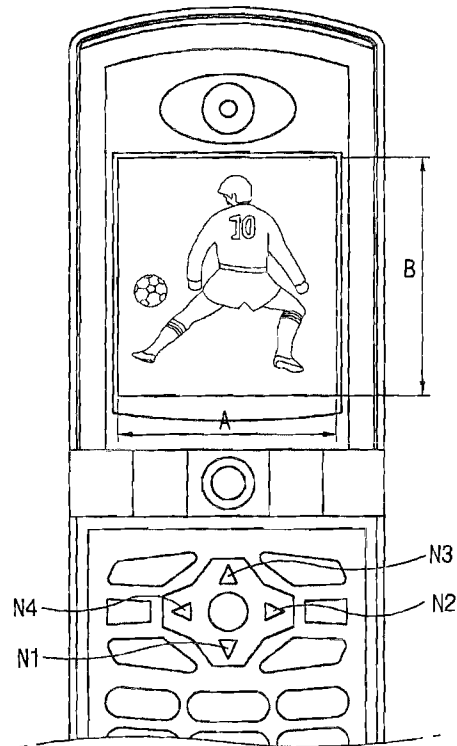
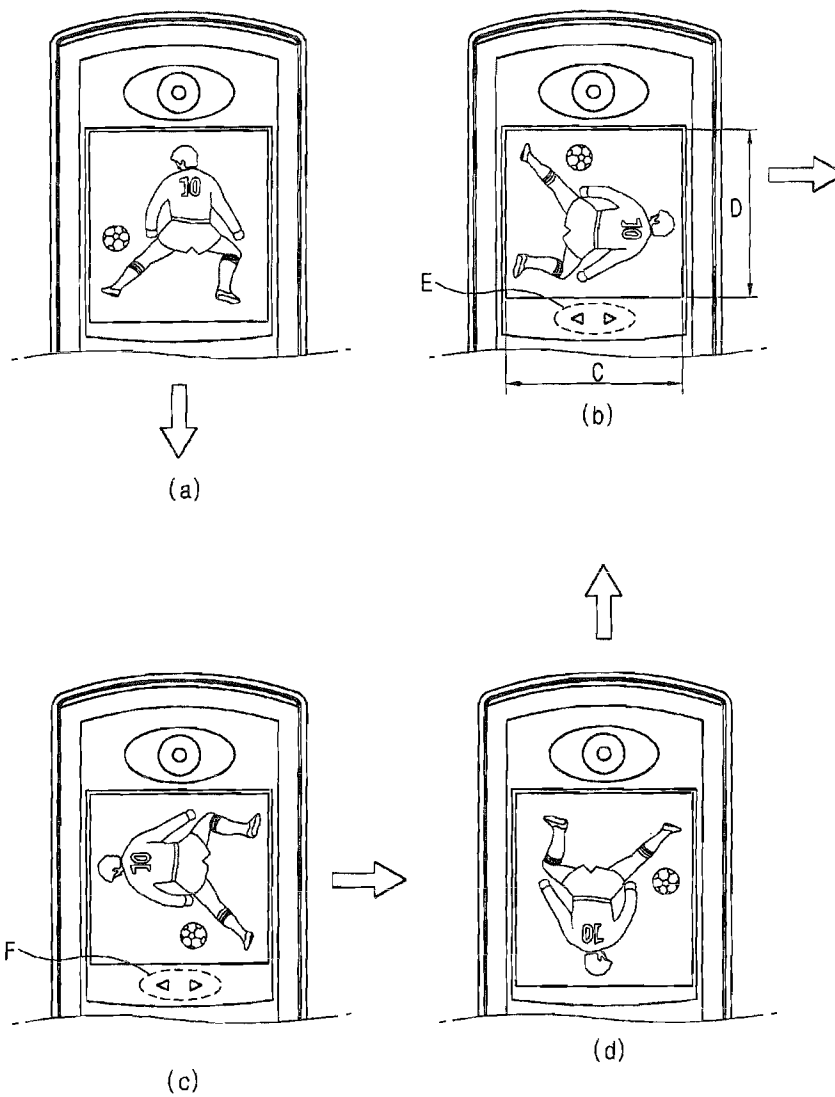
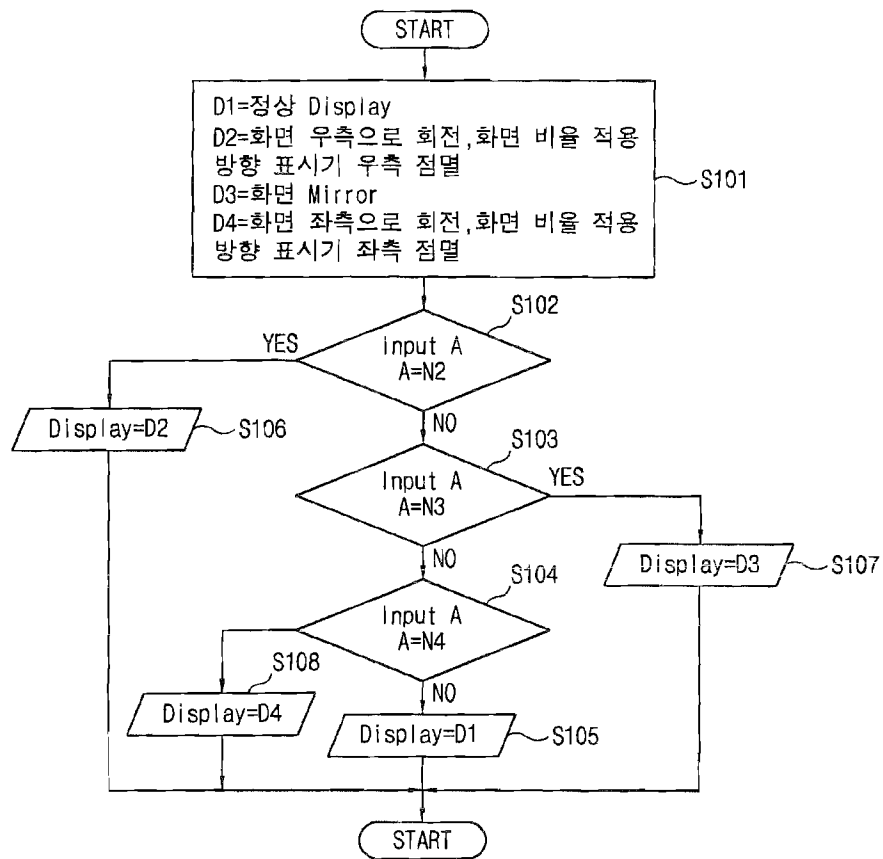


图 2  
 Fig. 2



【도 3】  
Fig. 3



S101 :

D1= normal display

D2= screen rotated to right side, screen ratio applied

Right direction indicator blinks

D3=screen mirror

D4= screen rotated to left side, screen ratio applied, Left direction indicator blinks